

Claims

1. A method of network planning for a mobile network infrastructure comprising a switch site connected to a plurality of Hub sites that are connected  
5 to a plurality of radio base stations (RBSs) sites, wherein the mobile network is arranged to provide wireless data and voice services to access terminals in a way that the overall system quality is improved by improving the frequency reuse for said mobile network infrastructure **characterized by**, connecting the Hub sites to the RBS using combination of point-to-point links and point-to-multipoint links.  
10
2. A method according to claim 1 wherein the point-to-multipoint link is a microwave link and is deployed with a frequency reuse of one requiring use of only a single wideband channel.
- 15 3. A method according to claim 1 wherein the point-to-point link is a microwave link and uses a portion of the point-to-multipoint frequency block consisting of a single wideband channel, without using a dedicated frequency, thus having a reuse of one.
- 20 4. A method according to claims 2 or 3 wherein the interference within a portion of the point-to-multipoint covered sector is reduced by choosing either a point-to-multipoint or a point-to-point terminal as a function of the C/I value in each location, thereby improving spectrum efficiency an the system quality.
- 25 5. A method according to any of the preceding claims wherein the network planning includes a first RBS site is connected to a second RBS site by means of a point-to-point terminal such that the access terminal, co-located with the second RBS site, routes the traffic from both the first RBS site and the second RBS site

to the Hub site such that the first RBS site is less affected by co-channel interference.

6. A method according to claim 5 wherein the spectrum usage is minimized by means of the angular antenna discrimination in conjunction with the traffic route diversity.

7. A method according to claim 1 wherein the RBSs are replaced by business users receiving and running high bit-rate Business Access applications.

10

8. A mobile network comprising a switch site connected to a plurality of Hub sites that are connected to a plurality of radio base stations (RBSs) sites, wherein the mobile network is arranged to provide wireless data and voice services to access terminals such that service quality is improved and interference reduced **characterized in that**, the Hub sites are connected to the RBS sites using combination of point-to-point links and point-to-multipoint links.

15

9. A mobile network according to claim 8 wherein the point-to-point links and point-to-multipoint links are any one of radio microwave links, fibre optic lines, or copper lines.

20

10. A mobile network according to claim 8 wherein the point-to-point link to the terminals are achieved by use of radio antennas having high angular discrimination for reducing the interference.

25

11. A mobile network according to claim 8 wherein a first RBS site is connected to a second RBS site by means of a point-to-point terminal such that the access terminal, co-located with the second RBS site, routes the traffic from

both the first RBS site and the second RBS site to the Hub site such that the first RBS site is less affected by co-channel interference.

12. A mobile network according to claims 8-11 wherein the point-to-point link  
5 is a microwave link and uses a portion of the point-to-multipoint frequency block consisting of a single wideband channel, without using a dedicated frequency, thus having a reuse of one.

13. A mobile network according to claim 8 wherein the RBSs can be replaced  
10 by business users receiving and running high bit-rate Business Access applications.